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ABSTRACT

This guide outlines for teachers the principles and practices of the use of workstations for teaching culturally and linguistically diverse pupil populations. Workstations can provide practitioners with information concerning appropriate learning methods and environments for this population and allow examination of different instructional techniques, including multimedia approaches. The report describes a workstation project involving eight classroom teachers, a principal, a chapter 1 resource teacher, and a consultant to identify curriculum areas of greatest difficulty for non- and limited-English-proficient (NEP and LEP) students. Instructional strategies that work best in multicultural contexts and classroom interactions that represent effective instructional practice are also examined. Two prototype modules for training teachers in the use of workstations are outlined. The first focuses on the monitoring of student learning and the use of writing as a vehicle for developing language and other academic skills. The second addresses the use of cooperative learning groups, use of multiple instructional techniques, and checking content of instruction for words and phrases that may not be familiar to or may be misinterpreted by NEP and LEP students. Contains 17 references. (MSE)

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Report on Workstation Uses

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Southwest Regional Laboratory

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Abstract

An activity of the Southwest Regional Laboratory's (SWRL's) Metropolitan Educational Trends and Research Outcomes (METRO) Center is development of a multimedia workstation for multicultural education. The main purpose of the workstation is to serve as an information resource for teachers and others who work with children from ethnically and linguistically diverse backgrounds. The need for this resource is critical given the student population in the Southwest, which increasingly includes students among whom many sociocultural backgrounds are represented.

The workstation has two major objectives. One is to provide teachers and others information regarding suitable learning methods and environments required for culturally and linguistically diverse students. The other is to provide opportunities to examine effective instructional approaches in a context that is most similar to the real world through use of computer-based dynamic learning models integrating audiovisual and text materials.

The *Report on Workstation Uses* describes work done to date by a development team comprised of eight classroom teachers, a principal, a Chapter 1 resource teacher, and SWRL staff to identify curriculum areas of greatest difficulty for non- and limited-English proficient (NEP and LEP) students. The report also identifies instructional strategies that work best for addressing the students' needs in a multicultural schooling process and specifies classroom events that portray successful instructional strategies.

Two prototype workstation modules are outlined in the report. Module 1 provides information about several instructional processes that both research and practical experience suggest are important to achieving effective instruction that involves LEP and NEP students in the learning process. Module 2 provides information about and illustrates teaching processes that increase the likelihood that all students will understand and participate successfully in instruction in classes that include students from a variety of ethnic and linguistic backgrounds. Both modules are based on the practical experience of the teachers and administrators on the development team and literature in the fields of effective teaching and effective instruction of NEP and LEP students.

Meeting the Immediate, Practical Needs of Teachers Whose Classes Include Ethnically and Linguistically Diverse Student Populations

The Southwest Regional Laboratory's (SWRL's) METRO Center has been engaged in the process of developing a multimedia workstation for multicultural education. The purpose of this document is to report progress in developing content to be added to the workstation database.

Background

The main thrust of the multimedia workstation for multicultural education project continues to be the development of a prototype workstation that can serve as an information resource center for teachers and others who work with children from ethnically and linguistically diverse backgrounds. The need for this information is critical, particularly given the student population in the Southwest, which increasingly includes students representing diverse sociocultural backgrounds. The proportion who come from homes in which a language other than English is spoken and the number of first languages represented among them also are increasing. More and more, teachers in suburban as well as urban and rural areas are called upon to provide effective instruction for these diverse student populations. For example, during the 1990-91 school year, a typical class in a sample of 1,422 new teachers assigned to teach in urban, suburban, and rural schools throughout California included students among whom three minority backgrounds were represented, with 25% of the students being limited English proficient. No class was without minority students (Ward, Dianda, van Broekhuizen, Radio, & Quartz, 1992).

Nature of the Workstation

The workstation has two major objectives. First, teachers and others are provided effective learning methods and environments that will help culturally and linguistically diverse students (a) develop English language proficiency, (b) succeed in academic content areas, (c) transition smoothly to a new cultural environment, and (d) experience a safer, more comfortable environment for home and school interactions. Second, teachers and others are provided opportunities to examine instructional approaches in a context that is similar to the real world, through dynamic learning models integrating (a) motion picture display, (b) audio information, (c) integrated audiovisual components, (d) text, as primary material and as documentary supplements to content under consideration, and (e) interviews with prominent researchers and practitioners.

The workstation uses computer and laser-disk technology to bring together cultural, social, instructional, and strategic information in an attractive and user-friendly format to access a core database of resources. Menus permit users to create their own paths or to select prespecified paths through filmed, audio, and written information. Teachers are able to access knowledge and skills needed to meet California's credentialing standards for instructing ethnolinguistically diverse students. These standards are acceptable or exceed those for similar teacher certification in other parts of the region. This work is closely allied with the Strategic Teaching Framework (STF) being developed by the North Central Regional Educational Laboratory (NCREL).

Features of the METRO R&D approach that are similar to NCREL's include (a) video segments of exemplary instructional practices with optional annotations by practitioners, researchers, and others; (b) assessment information, including authentic assessment strategies; (c) research and expert practitioner articles or bibliographic information, or both; (d) a notebook or bulletin board forum to provide assistance, discussion, and to update information; and (e) eventual interactive, on-line capability via an Internet gateway.

In addition, the METRO Center project adds several dimensions to the NCREL model, including (a) geographic information on immigrant children's countries of origin; (b) demographic profiles of various ethnic groups; (c) sociocultural examples, including customs and acceptable and unacceptable school integration practices; (d) linguistic characteristics of the primary language; (e) state or federal curriculum guidelines, or both, for instruction of ethnolinguistically diverse student populations and evaluation criteria for compliance; and (f) training sequences and requirements for obtaining Crosscultural Language and Academic Development (CLAD), Bilingual Crosscultural Language and Academic Development (BCLAD), and other certification for teachers to instruct limited-English proficient children.

Collaboration With Practitioners

Early in the workstation development process SWRL decided to include education practitioners on the development team. Toward this end, METRO Center staff have developed a collaborative relationship with an elementary school staff in a metropolitan area confronted with the instructional issues the workstation is proposed to address.

In April and June 1994, two groups of school staff visited SWRL and reviewed and critiqued examples of teacher development available in multimedia format. The group included eight teachers, the principal, and the Chapter 1 resource teacher. The group examined the Strategic Teaching Framework developed by NCREL, operated the computer, and probed the database for a full morning. Following this, they were interviewed to obtain their perceptions of the usefulness of the workstation and to obtain other ideas and recommendations for content

areas and technological considerations. This experience made clear that it was critical to obtain teacher participation in workstation development, particularly in identifying curriculum areas and instructional strategies, as well as develop descriptions of actual classroom events that can visually illustrate concepts to be included in the workstation database.

In August, nine teachers and the principal participated with METRO Center staff in a week-long work session to (a) identify curriculum areas of most difficulty for non- and limited-English proficient (NEP and LEP) students, (b) identify strategies that work best for addressing their needs in a multicultural schooling process, and (c) specify classroom events that best portray successful strategies with NEP and LEP students, and describe them in as much detail as possible.

The work session focused on developing protocols for two modules that could be incorporated into the workstation database. Module 1 provides a variety of approaches teachers may use to operationalize several instructional processes that are key to all students' successful learning. Module 2 explores ways teachers organize several processes that are particularly important for instruction of culturally and linguistically diverse groups of students. Work-session participants generated a list of topics for potential inclusion in the two modules.

For each topic in the two modules, several example protocols were outlined in depth. Each protocol description included (a) the teaching dimension that was the focus (e.g., teachers modeling a writing strategy); (b) action to be depicted in filmed event(s); (c) emphasized teacher-student interaction; (d) teachers' or others' explanatory comments; and (e) linkage with other teaching dimensions, in particular strategies from the literature recommended for use in instructing NEP and LEP students.

Products of the work session are described in the remainder of this report.

Schema for Workstation Segment 1

Research on effective instruction of students with limited English proficiency begins with basic effective instruction and then is expanded through teaching strategies that focus on non-English proficient (NEP) and limited-English proficient (LEP) students and facilitate their acquisition of English proficiency and successful participation in instruction (cf., Ramirez, Yuen, Ramey, & Pasta, 1991; Tikunoff, 1993; Tikunoff & Ward, 1991).

Work-session participants prepared a preliminary outline of the sorts of teaching strategies that might be included in Segment 1 of the workstation. The outline builds on research in bilingual education and alternative approaches to instruction of NEP and LEP students (cf., Ramirez et al., 1991; Tikunoff et al., 1991), together with the skills, knowledge, and experience of the practitioners on the workstation development team. The prototypes produced emphasize

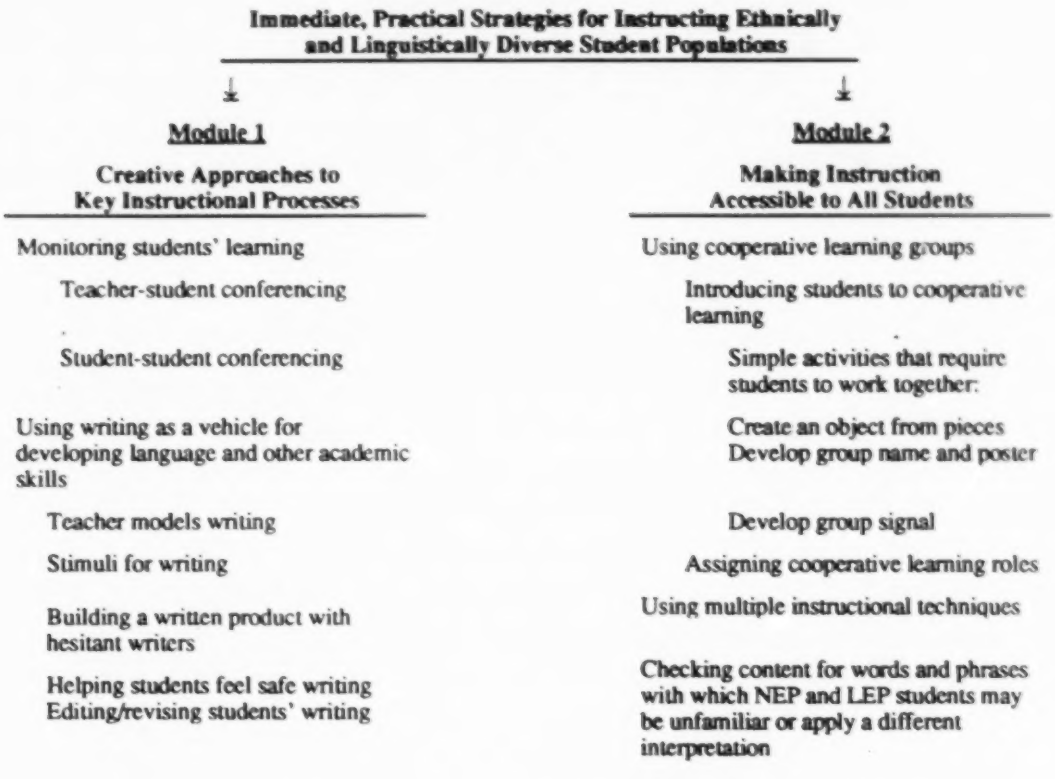
immediate, practical strategies for making instruction accessible to all students, but particularly to NEP and LEP students.

The team developed two prototype modules. Module 1 provides information about several instructional processes which involve LEP and NEP students in the learning process, that both research and practical experience suggest are important to achieving effective instruction. Module 2 provides information about, and illustrates, teaching processes that increase the likelihood that all students will understand and participate successfully in instruction in classes composed of students from a variety of ethnic and linguistic backgrounds.

Figure 1 outlines the initial set of instructional processes the development team proposed for Segment 1 of the workstation. The proposed content is not intended to represent a complete listing of all possible instructional processes that might be part of a segment. Rather, the processes were selected to illustrate the sorts of instructional strategies, and related professional commentary and literature, that might be included. Areas chosen for preliminary development were those the development team thought others would find useful in adapting their instruction to the needs of diverse student groups.

The content proposed by the development team may be presented in the form of written documents and verbal commentary; in addition, the content may include mediated illustrative classroom examples. Information (about instruction of NEP and LEP students) will begin with written and verbal statements describing the instructional strategies for which information is available. Steps and linkages will be provided to allow teachers to move through the strategies in sequence, move to particular strategies, or opt to work with other content areas. A discussion of each module follows.

Figure 1
Examples of Instructional Processes To Be Included in Workstation Segment 1 Prototype for Use by Teachers of Ethnically and Linguistically Diverse Student Populations


Immediate, Practical Strategies for Instructing Ethnically and Linguistically Diverse Student Populations
Module 1
Creative Approaches to Key Instructional Processes
Monitoring students' learning
Teacher-student conferencing
Student-student conferencing
Using writing as a vehicle for developing language and other academic skills
Teacher models writing
Stimuli for writing
Building a written product with hesitant writers
Helping students feel safe writing
Editing/revising students' writing
Module 2
Making Instruction Accessible to All Students
Using cooperative learning groups
Introducing students to cooperative learning
Simple activities that require students to work together:
Create an object from pieces
Develop group name and poster
Develop group signal
Assigning cooperative learning roles
Using multiple instructional techniques
Checking content for words and phrases with which NEP and LEP students may be unfamiliar or apply a different interpretation

Module 1: Creative Approaches to Key Instructional Processes

Initially, the development team selected two parts of effective teaching and learning that their own experience and literature in the fields of effective teaching and effective instruction of NEP and LEP students suggested would be most helpful to teachers assigned to teach ethnically and linguistically diverse student groups. The areas include monitoring students' learning and using writing as a vehicle for developing language and other academic skills.

Monitoring Students' Learning

Monitoring students' learning is a key to effective instruction, for of any group of students. It becomes even more important when working with students from a variety of ethnic and

linguistic backgrounds, some of whom have no or limited English proficiency. An essential feature of the process is providing tools that are understandable to students who may have difficulty demonstrating their progress based on oral classroom communication in English or responses to tests written in English. Effective teachers of ethnically and linguistically diverse student groups employ fewer paper and pencil monitoring tools in favor of tools such as planning and check-in conferences, illustrative models of work to be done, and cumulative records of students' progress (cf., Tikunoff, Ward, & van Broekhuizen, 1995).

Interviews with teachers who taught ethnically and linguistically diverse classes that, on average, were higher-performing on standardized achievement measures than similar classes in the same schools provided several examples of effective monitoring tools (Tikunoff et al., 1995). Progress charts listing learning tasks to be completed during a given week, or steps to be taken to complete a more lengthy learning activity, helped students judge where they were in relation to the full range of work to be done. By including examples of the work to be completed as part of each step on the chart, teacher expectations for student performance were illustrated concretely for all students. Students placed sticky labels containing their names at the points on the chart where they were working. A quick glance at the chart prompted the teacher to interact with students whose work was ready for review, or students who appeared to be moving too slowly. As a result, students who might be hesitant to initiate student-teacher contact received timely guidance and feedback.

Another useful monitoring tool is tape recordings of students reading to one another or to the teacher. Prepared at least once each quarter, and reviewed with students individually as the year progressed, the recordings provide a means for both the teacher and student to measure a student's progress in reading and in English language acquisition.

Checklists developed with individual students listing the skills and knowledge the student is to acquire during the next month or so and highlighting things a student is to improve serve as another useful monitoring tool.

The workstation development team worked through two protocols to illustrate use of various monitoring tools. Protocol 1, as shown in Figure 2, applies several tools in a teacher-student conference situation. Protocol 2 (see Figure 3) uses them in a student-student situation. The protocols were developed with the expectation that the workstation would include videotaped examples of the interaction that took place during the conferences. If no videotaped examples are included, written or narrative descriptions are necessary. In either format, samples of the monitoring tools and exemplary work referenced in the protocol should be available in the module so the user can obtain copies.

Figure 2
Dimension of Teaching: Monitoring Student Learning (Teacher-Student Conferencing)

Module 1: Protocol 1
Grade: All grades

Classroom Setting Information To Be Presented at Beginning of the Protocol	Instructional Tools To Be Presented	Teacher/Student Interaction To Be Emphasized	Comments To Be Made by Teachers or Others	Linkage With Other Modules and Content
Key points to be made about classroom: • Describe ethnic and linguistic diversity of student population • Elementary grade level focus • Conference takes place at a table on the periphery of classroom where teacher can see other students while conferencing with individual student. Key points to be made about content of conference: • Example is a conference at which student and teacher are deciding if student is ready to move from prewriting to first-draft stage of story development. • Teacher uses a process writing approach to writing instruction. • Within a specified time frame, each student works through steps in process on his/her own.	A goal sheet on which pre-writing activities student was to complete are listed. These include: • A story web • Written or illustrated description of story setting • Sequential sketch of story events • Written or illustrated list of story characters and things that describe them. Student has checked on sheet the activities that are completed and has brought completed work to the conference. Teacher has examples of webs, illustrations of story setting, etc. with which student can compare his/her work.	Student selected purposely for conference is LEP. They begin with the student's description of the story setting. The student has opted to illustrate the setting. Example purposely has been created so illustration is minimal in content. Teacher has student look at example of setting drawn by another student (from previous class) and together they identify information in the example drawing that is missing in the student's illustration. Agree on additions to be made. Then they move to sequential sketch of story events. Emphasize strengths such as includes two or three major events, builds to a good ending. Teacher ends conference here. Has student return to add to setting illustration. Schedules time to review characters and story web.	Teacher comments include: • Information regarding students' English language ability • Statement regarding selection of setting as beginning point, e.g., students tend to give too little attention to where a story takes place • Helpfulness of examples from other students. Important that examples be anonymous and not from present class • Need to point out strengths to student, not just say something is good • Conference can include multiple sessions so student can focus on a few areas to be improved and specific things done well each time • To go through all pre-writing products at one time would create verbal communication overload for LEP student.	Link to Protocols: • Stimuli for writing • Helping students feel safe writing. Literature to be included as supporting information: • A published article on monitoring students' learning • Scheideman, S. N. (1995, Winter). Writing checklists: Empowering students to succeed, *Teaching and Change*, 2(2), 99-117 • Excerpts from: Bowman, B. (1991). Educating language minority children: Challenges and opportunities. In S. L. Kagan, Ed., *The care and education of America's young children: Obstacles and opportunities* (pp. 17-29). Chicago: University of Chicago Press.
Information to be presented in written or oral form. Oral presentation may be over picture of classroom or video scan of classroom.	Include links that allow user to see examples of goal sheet, student's products, teacher's examples of quality products.	If technology does not accommodate video example, this component would be omitted.	Points to be made by teacher over still frames of video or pictures of teacher and student working on particular products.	Links should facilitate movement to other protocols. Literature to be read on screen or downloaded for printing, or both.

Figure 3
Dimension of Teaching: Monitoring Student Learning (Student-Student Conferencing)

Module 1: Protocol 2
Grade: Grades 3-6

Classroom Setting Information To Be Presented at Beginning of the Protocol	Instructional Tools To Be Presented	Student/Student Interaction To Be Emphasized	Comments To Be Made by Teachers or Others	Linkage With Other Modules and Content
Key points to be made about classroom: • Describe ethnic and linguistic diversity of student population • Grade 3 and higher focus • Students are seated with tables in clusters of four • Students assigned to table so they represent a variety of academic levels and first language support is available to the LEP students at the table. Key points to be made about purpose of conference: • Students have completed a written draft describing the characters in a book they have read • Students assigned to the table cluster are reviewing each other's descriptions and suggesting information to be added • Teacher is moving around the classroom listening as students work together but purposely not adding her critique.	Students have a checklist of information to be provided when describing characters in a story. Checklist applies to characters in a story students have read or one in stories they write. Students use a technique for adding information to a piece of writing where they write the insert on a separate piece of paper, cut it out, and tape it on the draft document at the point where the information should be added.	Concentrate on suggestions students make about additional information to include in their character descriptions. Include excerpts of discussion of each student's work. Show ways in which students use information from one student's descriptions to suggest additions to another student's description. Include example of a student who speaks the same first language as another student clarifying/explaining what the group is recommending.	Using cooperative groups that include various levels of academic and English language proficiency facilitates productive student interaction. The student-student conferencing being demonstrated is concentrated on a particular stage in the assignment. All groups in the class are not at this same stage. Another group is critiquing sketches of the characters prior to completing written descriptions. One group has completed their descriptions and are doing final checks for spelling accuracy. It is important that students have a guideline such as the checklist to lead them through a team conference and that they focus on this information. It is important that additions are made by the student whose descriptions are being reviewed, not by another student.	Link to protocols: • Editing/revising students' writing • Introducing students to cooperative learning • Assigning cooperative learning roles. Literature to be included as supportive information: • For information on using cooperative groups, include excerpts from Slavin (1990), Johnson and Johnson (1985), and Johnson, Johnson, and Holubec (1994 a, b). • For information on involving LEP students in cooperative activities, include teachers' comments and guidelines, e.g., Corsini Elem. School teachers and exemplary teachers from Special Alternative Instructional Programs (SAIP). • For insights into challenges faced by LEP students, use excerpts from Tikunoff re student functional proficiency.
Information to be presented in written or oral form. Oral presentation may be over picture of classroom or video scan of classroom.	Include links that allow user to see example of character checklist and student writing with inserts.	If technology does not accommodate video example, this component would be omitted.	Points to be made by teacher over still frames of video or pictures of teacher and student working on particular products.	Links should facilitate movement to other protocols. Literature to be read on screen and/or downloaded for printing.

Using Writing as a Vehicle for Developing Language and Other Academic Skills

A whole-language approach to developing language arts skill and knowledge combines writing with reading, listening, and speaking skills in a manner that parallels as closely as possible language use in everyday life (cf., Anderson, Hiebert, Scott, & Wilkerson, 1986; Paris, 1992). As a result, the writing process becomes a vehicle for building NEP and LEP students' English language skills at the same time the students are introduced to the other language arts areas. Since written products often capitalize on information and ideas taken from students' own environments, writing also affords students from diverse ethnolinguistic backgrounds an opportunity to place their learning in familiar contexts.

The workstation development team identified five instructional processes that facilitate student writing that they felt would be helpful to teachers of classes that include students from diverse language and cultural backgrounds. They considered modeling the writing process for students important. For hesitant writers, providing stimuli for writing, and building a written product, were seen as areas inviting teachers to use multiple ideas and strategies. Helping students feel safe writing was deemed to be particularly important when asking LEP students to write in English. The team determined that techniques to facilitate editing and revising students' written work were required to keep the burden of reviewing students' writing within reasonable bound. Prototype examples of each process follow.

Teacher Models Writing

By writing together with students, a teacher can demonstrate the writing processes students are to follow and introduce techniques for generating ideas and putting them together in written form. Using purposeful mistakes—such as intentional errors in grammar and spelling, illogical order of events, or attachment of descriptors to a wrong person or event—can build students' awareness of the requirements of good writing.

In order to provide workstation users with an array of approaches to model writing, the team approached this protocol (see Figure 4) as an assortment of techniques rather than a demonstration of a complete activity. The team included the use of written morning messages, daily oral language activities that become written statements, and building a narrative story with a class over several days.

Figure 4
Dimension of Teaching: Using Writing as a Vehicle for Language Development (Teacher Models Writing)

Module 1: Protocol 3
Grade: Grades 3-6

Classroom Setting Information To Be Presented at Beginning of the Protocol	Instructional Tools To Be Presented	Teacher/Student Interaction To Be Emphasized	Comments To Be Made by Teachers or Others	Linkage With Other Modules and Content
Key points to be made about classrooms: • Describe ethnic and linguistic diversity of student population • Elementary level focus. Key points to be made about how examples fit in larger context: • LEP students in class are at various points in development of English vocabulary • Use of first languages is allowed in the classroom • Teacher modeling of writing fits into a process writing approach. Key points to be made about teacher modeling writing: • Teacher modeling writing is used throughout the school year • By making purposeful errors, teacher points out ways to correct students' errors.	Each day teacher writes a short paragraph on the chalkboard. Students look for errors teacher purposely has made in the writing. Students look for places where teacher has used words from diverse languages. Students provide additional information that might go in the paragraph. Teacher and students write weekly news together. Teacher uses different colored chalk (pens) for each sentence that is written. Some sentences purposely are incomplete. Teacher starts a description of a character (s)he wants to put in a story. Students add to description. After gathering four or five descriptors, teacher explores the sorts of stories might go with this character.	Errors included in paragraph are ones students frequently make. Focus on how teacher uses errors as a teaching tool. Include words in paragraph from various languages represented in the classroom; put attention on number of words that identify or describe the same thing, action, characteristic. After weekly news is completed. Teacher has students check to be sure each sentence is complete. Focus on descriptors added by students. Teacher accepts descriptors from diverse languages. Asks students who know both languages to explain meaning of words from other languages. When planning stories that might be written, stress how teachers gets students to generate the ideas.	Work on daily paragraph draws students' attention to writing skills in a brief and somewhat informal setting. Teacher errors provide teaching opportunities and make students feel more comfortable about making errors themselves. Encouraging use of words from diverse languages expands all students' knowledge and appreciation of language. Using different colors for each sentence highlights students' contributions and helps focus students' attention when comparing sentence structures. Short sessions in which story characters are developed help build students' skill in creating their own characters. Sessions do not have to focus only on development of story characters. Other types of word clusters can be used, such as action words that go with an event.	Link to protocols: • Stimuli for writing • Building a product with hesitant writers. Literature to be included as supportive information: • Vail & Papenfuss (uk), *Daily oral language*. Evanston, IL: McDougal, Littell and Co. • Excerpts from: Bowman, B. (1991). Emphasize section on classroom communication and include side notes to relate to modeling activities. Excerpts from articles on stages of English language development.
Information to be presented in written or oral form. Oral presentation may be over picture of classroom or video scan of classroom.	Include links that allow user to see examples of the three prompts the teacher uses.	If technology does not accommodate video example, this component would be omitted.	Points to be made by teacher over still frames of video or pictures of teacher and student products.	Links should facilitate movement to other protocols. Literature to be available to read on screen or downloaded for printing, both.

Stimuli for Writing

A variety of approaches can be used to generate ideas for students to write about. Among those used frequently by the workstation development team were: pictures, songs, a story read by the teacher; letter exchanges with other classes; writing directions for making an object or telling how to get from one place to another, and selecting a topic of high interest and having half the students write pro statements and half write con statements. Properly selected, the stimuli can bring into the writing experience the cultures represented among the students in the class. Protocol 4, as shown in Figure 5, outlines the sorts of stimuli that might be included in a workstation prototype.

Figure 5
Dimension of Teaching: Stimuli for Writing (Pictures)

Module 1: Protocol 4
Grade: Upper Elementary

Classroom Setting Information To Be Presented at Beginning of the Protocol	Instructional Tools To Be Presented	Teacher/Student Interaction To Be Emphasized	Comments To Be Made by Teachers or Others	Linkage With Other Modules and Content
Class includes students from diverse cultural and linguistic backgrounds, some of whom are NEP or LEP. Students are sitting at desks arranged in clusters of four desks each. Explain why desks are arranged this way and how students were assigned to clusters. All students are facing the display from an overhead projector.	Use of picture to stimulate students' thinking about things to write about. Each student has a copy of the picture. Picture includes a busy street with people, children, buildings some of which are stores and some office buildings, cars. It encourages students to think about what the people in the picture are doing. As students mention topics that could be written about, teacher writes them on the overhead project in clusters, e.g., • People • Setting • Why people are there • What the people are doing • How what is happening might end. After discussion, each student begins to work on a description of the picture. Students are allowed to interact with one another as they write.	Show that all students have a copy of the picture that is to be described. Teacher accepts all answers given by students as long as they are "real," i.e., bear some relationship to the picture. Focus on opportunities teacher takes to: • Point out richness of information that is provided • Capitalize on cultural perspectives applied to the picture. When students begin working at their desk clusters, teacher moves about the classroom talking with groups of students about the ideas they plan to put in their narratives. Teacher encourages students to add to the topic clusters the entire class put together.	Teacher discusses how stimulus pictures are selected. Include comments about showing events that students from diverse culture can give meaning to. Point out that when it comes time to write, some students focus on only part of the picture, others take the entire picture into account. Important for teacher to accept differences in the complexity of what is included in the writing but also to prod students to include more than one or two pieces of information. Teacher may hold an individual conference with a student and help identify additional topics to include.	Reason for clustering of desks and how students assigned to clusters linked to *cooperative grouping* protocols. Refer teachers to California Dept. of Ed. handbooks on minority cultures for information on cultural background experiences and information various students might apply to stimulus pictures.
Information to be presented in written or oral form. Oral presentation may be over picture of classroom or video scan of classroom.	Include links that allow user to see picture the students have been given and clusters teacher writes on the chalkboard.	If technology does not accommodate video example, this component would be omitted.	Points to be made by teacher over still frames of teacher writing clusters on the chalkboard and students working on their descriptions.	Links should facilitate movement to other protocols. Literature to be read on screen or downloaded for printing, or both.

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Building a Written Product With Hesitant Writers

For a variety of reasons, not all students in a class may be eager to write. For example, when a limited-English speaking student is asked to write in English, the task may appear to be formidable. Some other students may have had limited exposure to and experience with writing.

Building on their own experience with hesitant writers, the workstation development team described an array of strategies they use to bring students into the writing process. Some strategies were more appropriate for lower-elementary grade levels; others for the upper elementary grades.

Activities that worked well at all grade levels called for students to fill in missing pieces in a sample of writing, rather than being asked to produce a complete document. The complexity of the missing pieces might vary across elementary grade levels, but the tasks assigned would be similar. For example, students would be given a descriptive paragraph with letters, words, or phrases missing and asked to fill in the spaces. Allowing LEP students to include words from their first language encourages their participation, and at the same time brings new information to English-speaking students in a class. If the teacher does not know the words contributed by a student, the student, other students, or aides in the class may be asked to translate. Students share what they add through discussions that focus on what the additions do to the meaning of the writing, not on whether the addition was right or wrong.

Another strategy is to provide incomplete sentences that students complete by providing subject or verb phrases. Again, teachers may allow words from languages other than English. Follow-up discussion of students' additions can emphasize the meaning the sentence is given, rather than whether a student guessed the "correct" word.

Pairing a teacher or an aide with a student to write as the student dictates can be used as a beginning step at lower elementary grades, and may be used with some students at the upper elementary level. At the upper level, a student might be asked to read to the teacher a written draft in which preliminary spelling and punctuation are difficult to decode. This experience facilitates progress from early stages of writing to a product others can read. However, the teacher need not pause during the dictation process to show the student differences between what was originally written and what was dictated. Such a conference can be held later.

Developing class books, to which each student contributes one page, is a technique often used at the lower elementary level. However, the technique works equally well at the upper level by providing students with opportunities to contribute without requiring lengthy written products. Having older students make books for younger ones, also affords the older students a legitimate opportunity to do simple writing.

Having the teacher stipulate the number of paragraphs, paragraph topics, and types of sentences to be included in each paragraph helps older elementary students who otherwise would write very little.

One upper elementary teacher found that all students would write persuasive arguments when asked to tell in writing why the class should do something such as have ice cream on Friday. Another found that having students write what they wanted to know about a picture, rather than describe the picture, encouraged more interesting and complex written products from her students.

At all grade levels, the opportunity to develop a book through to publication and place the book in the class or school library, or both, encouraged some hesitant writers to produce written products.

The protocol for this aspect of using writing to develop language and other academic skills will be similar to that for Protocol 3. An assortment of strategies for involving hesitant writers will be included.

Helping Students Feel Safe When Writing

Teachers on the workstation development team emphasized that students feel safe when teachers and other students accept their writing and encourage additions and improvements, rather than "putting down" what has been written. They noted that applying consistent guidelines for what is to be accomplished at each step in the writing process is equally important. Being sure that all students are clear about the guidelines is necessary. Use of temporary or developmental spelling is essential during early writing steps. Accepting writing in the students' home language(s) and translating their writing (from English to another language or the reverse) reduces the stress on LEP students. Not requiring correct mechanics or a "perfect" copy until at the final publication step, and only for some products, encourages students to put their ideas on paper freely without concern that what they write is correct.

The team suggested several strategies for demonstrating to students that writing products are not always expected to be perfect, nor always to be shared with others. An obvious strategy is to concentrate on only a few pieces of writing that students know in advance will be carried through draft, edit, and final product stages. Purposefully including errors in the writing being modeled for students was suggested, since it shows that mistakes are correctable (see Protocol 3). Journals in which students write whatever they wish several times a week can be useful, provided that the teacher reads what they write only when asked. This adds another dimension of safety to in-school writing. Interestingly, the team commented that the proportion of students

requesting that teachers read their journals increased as they found they received positive and supportive comments about what was read.

The development team thought that strategies they used to help students feel safe when writing had to be carried out over time before the full effect could be observed. How to illustrate use of such strategies via a multimedia training station or interactive network proved challenging. It seemed more feasible in a multimedia format, because examples of how a strategy is used in a particular classroom could be shown at different points across the school year. In an interactive network, more detailed descriptions of the strategies, with supporting teacher comments and references, seemed to be the only information that could be included. The ways in which student confidence and trust were built through use of the various strategies could not be demonstrated.

Editing and Revising Students' Writing

In most process writing approaches to written language development, editing and revising students' writing begins at the earliest stages, as plans for what will be written are being drafted. The teacher-student and student-student conferencing protocols presented earlier showed examples of interactions that might take place at various editing and revising points. To review and improve each student's writing at all points in the process can require extensive teacher time. The workstation development team concentrated on strategies that make the best use of all persons in the classroom—teacher, instructional aide, and students—to give each student helpful input.

One suggested strategy is to organize a writing period so students who are at the same stage in their writing work together. All students preparing an outline, a web, an action sequence, or some other plan for a written product can work at one table. Students who have completed a first draft can work together at a second table. Those inserting information and adding to their writing based on recommendations about their first draft are at a third table. Those ready for a final read through and edit are at a fourth table. At each table the teacher concentrates on questions and suggestions appropriate to the stage students at the table have reached. Ideas given one student might be useful to another. Student-to-student interaction might be more focused on particular editing and revising tasks than otherwise would be the case.

Another strategy used at the first draft stage is to assign a student partner to the student whose draft is ready for review. The student's draft is read aloud by the partner, a strategy teachers have found highlights ways to improve writing. Together, the student and partner decide on improvements to be made. Selecting partners so LEP students work with other students who speak the same first language for at least some of their editing and reviewing sessions is recommended.

In classes that do not have word-processing programs available on computers, changes up to the final product stage in student writing are added by cutting and taping/pasting strips of paper that contain additions or changes in the writing. Students only complete rewriting once when the final product is prepared. Some writing never goes beyond the "cut-and-paste" stage.

When computers are available, students write the first draft by hand. Then, they enter their writing into the computer using triple spacing. Upper elementary grade teachers indicated that many students make their own edits as they do the computer version. A partner then reads the computer version aloud, and the two work out changes and additions and enter them on the computer. When this is complete, there is a student and teacher conference about the writing before the final version.

Throughout the entire school day, students collect words they want to use but do not know how to spell. The last 20 minutes or so of the day, students share their word lists. Other students are given an opportunity to provide the correct spelling. Word meaning and use of the words in sentences are part of the discussion. If none of the students in the class knows the correct spelling without looking up a word in the dictionary, it becomes a word on the permanent spelling list for the week.

These strategies are sufficiently specific and self-contained that they lend themselves to presentation through an assortment of strategies. The presentation would be similar to the one used in Protocol 3.

Module 2: Making Instruction Accessible to All Students

The purpose of Module 2 is to illustrate teaching strategies that increase the likelihood that all students will understand and participate successfully in the teaching and learning processes in a class that includes students from a variety of ethnic and linguistic backgrounds. The module builds upon three major studies of effective instruction of LEP students (Berman et al., 1992; Ramirez et al., 1991; and Tikunoff et al., 1991). Initial work in this area concentrated on three strategies that were supported by findings from all three studies: (a) using cooperative learning strategies, (b) using multiple instructional techniques, and (c) checking curriculum content for words and phrases that students from various ethnolinguistic backgrounds may not understand or may misinterpret. An overview follows of the workstation development team's work in these strategies.

Using Cooperative Learning Groups

Research has found that LEP students achieved higher proficiency in English and higher achievement in academic areas, such as reading and mathematics, when the teacher used

cooperative learning groups to complete some assigned learning tasks. Other researchers and developers have found that cooperative learning not only has positive results for improving academic gains, especially for minority and low achieving students, but that it also improves race relations among students in integrated classrooms, and increased prosocial development among all students (Johnson, Johnson, & Holubec, 1994a, 1994b; Kagan, 1985; and Slavin, 1990).

The advantages of cooperative groups when working with ethnolinguistically diverse student populations are many. An important feature is the opportunity for students to clarify learning tasks and exchange ideas with each other. Including students who speak the same first language, one of whom is more proficient in English than the other(s), can provide support to students whose English is limited. The presence of students whose first language is English promotes language growth for all students and increases the opportunity for LEP students to interact in English.

Although using cooperative learning groups is becoming more common across classrooms, the workstation development team thought that many teachers were hesitant to begin because they had few ideas about how to introduce cooperative learning to their students. A related concern was identifying different ways to assign roles to students in cooperative groups. Development of workstation prototypes in these two areas was recommended.

Introducing Students to Cooperative Learning

Even though introducing students to cooperative learning is to be the primary focus of the protocol, the team strongly recommended the protocol begin with information aimed at answering questions often raised by teachers who have yet to try the approach. A teacher on the team who was a beginner when it came to cooperative learning identified several questions the prototype should cover: What are cooperative groups and how are they different from other learning groups? When are cooperative groups more appropriate or productive than other types of learning groups? What kinds of cooperative groups can be formed? Once cooperative groups are formed, what is the teacher's role?

Protocol 5, as shown in Figure 6, incorporates these questions as part of the information to be included at the beginning of the protocol to set the stage for examples of ways to introduce students to cooperative activities that follow. The protocol goes on to outline the introductory strategies to be included, teacher and student interaction to be emphasized, teacher comments to be added, and literature regarding cooperative learning that may be helpful. The strategies all provide experience with five major team-building tasks outlined by Kagan (1985): getting acquainted, valuing individual differences, team-identity building, experiencing mutual support, and demonstrating synergy.

Figure 6
Dimension of Teaching: Introducing Students to Cooperative Learning Groups

Module 2: Protocol 5
Grade: All Elementary Grades

Classroom Setting Information To Be Presented at Beginning of the Protocol	Instructional Tools To Be Presented	Teacher/Student Interaction To Be Emphasized	Comments To Be Made by Teachers or Others	Linkage With Other Modules and Content
Protocol begins with written or oral statements regarding use of cooperative groups to facilitate student learning and how such groups promote LEP students' learning. Statements can be taken from research reports and key authors (see linkage with other content). Teachers who use cooperative groups effectively provide written or oral statements responding to questions: • What are cooperative groups and how are they different from other learning groups? • When are cooperative groups more appropriate or productive than other types of learning groups? • What kinds of cooperative groups can be formed? • Once cooperative groups are formed, what is the teacher's role? Classroom student populations then are described.	All activities are simple activities that require students to work together. They are to introduce cooperation, not teach academic skills. One activity requires each of four students in a group to make a complete circle by putting pieces together. Each student has a set of circle parts, however the parts in the sets do not make a complete circle. Students have to work together and trade parts to make the circles. Students are grouped and assigned the tasks of naming their group and making a poster illustrating the name. To make the poster, each student in the group has one crayon. That student is the only one who can add that color to the poster. All colors must be on the poster. Students are grouped and assigned to develop one sign-sound relationship to be presented to the class.	Focus on teacher as (s)he explains that goal of the activity is to practice how to work together in a group. Emphasize how teacher makes it clear that what is to be done cannot be done alone. As activities are explained, stress that each student must contribute. For the sign and sound activity show teacher giving an example of a sign/sound combination. As students are carrying out the tasks, focus on ways they are working together. Include conflicts as well as positive interactions. Show discussion after each activity is completed. Focus on how having other students to work with helped. Note how the different ideas students contributed added to the product the group created.	Experienced teachers and an expert talk or write about why cooperative groups are used. Point out that teacher assigned students to groups so (s)he would be sure the students were ones who could work together and there was a mix of social, language, and academic performance in the group. Teacher comments that having students work together well will not happen in one day. Conflicts and unwillingness to cooperate are apt to happen at first. Teacher points out benefits of cooperative activity compared with assigning these tasks to be done by students individually.	Using writing to build language protocols that employ cooperative groups could reference teachers to this protocol for help in starting cooperative groups. Attach excerpts, chapters, entire papers by several experts on cooperative grouping to the protocol so teachers who are interested can read them on screen or print copies to read later. Experts to be considered include Johnson, Johnson, and Holubec (1994 a,b), Slavin (1990), Kagan (1985). Append a printed list of additional ideas for introducing students to cooperative learning to the protocol. The list could include additional ideas proposed by the workstation development team along with further activities proposed by other teachers. On an interactive network other teachers could be urged to add to the list.
Information to be presented in written or oral form. Oral presentation may be over picture of classroom or video scan of classroom.	Include links that allow user to see examples of materials students are given.	If technology does not accommodate video example, this component would be omitted.	Points to be made by teacher and expert over still frames of video or pictures of students working on the three collaborative activities.	Links should facilitate movement to other protocols. Literature to be read on screen or downloaded for printing, or both.

Assigning Cooperative Learning Roles

The roles assigned students in a cooperative group may vary with the task to be completed. At times, each student has a task to complete, and group members are there as resources from whom assistance may be sought (e.g., peers help one another review and edit a piece of writing). At other times, each member of a group has a piece of a report or other product to complete or a piece of information to obtain and to combine with the work of other group members in a final group product. At times, the group works together to complete a single worksheet; to read a story, article, or chapter in a book together; or to dramatize a story. However, it is the teacher's responsibility to assure that all students are assigned roles that go beyond completing the required tasks. Roles most often used include:

- *Facilitator*—This student is responsible for seeing that all students in the group provide ideas and are assigned tasks. When a group includes students for whom English is a second language, the facilitator must urge their participation, as well as those whose first language is English. A student who is fairly fluent in English but also speaks the first language of the LEP student(s) may be a good candidate.

- *Reporter*—Not all cooperative tasks require a reporter. When needed, the teacher should strive to assign all students this role at some point during the school year. If a reporter needs help with spelling and writing, other students in the group can provide support. But, each person in a group has the opportunity to report back to the class on what the group has done.

- *Checker*—This role is important when each member of a group is to provide a part of a final product. The checker makes sure the work is being done and that it is accurate or appropriate.

- *Materials organizer*—This role assigns one student in the group to obtain, store, and distribute all the materials a group needs to complete an assigned task. The role lessens the business associated with getting books and supplies to all the groups in a classroom.

- *Praiser*—Teachers find group interactions are more supportive and productive when a student is responsible for complimenting students on their contribution to the group's efforts. Some teachers describe this student as the one who keeps a warm, fuzzy feeling in the group. The role decreases the likelihood that group members will become negative with each other.

Generally, teachers introduce students to various roles through discussing each role. Teachers and students also can role play situations in which first the teacher and then students

portray various roles. A list and description of the roles often is posted in the classroom for quick reference if students forget what a person in a particular role is to do and how other students are to cooperate with that person.

Most teachers rotate roles among students in a group as they also rotate group members. Teachers believe it is important for each student to experience the responsibilities associated with all roles so each student understands both what the student in a particular role is to do and how actions by other students can make the role easy or hard.

Protocols explaining or demonstrating group roles could be developed along two paths. One would demonstrate all the roles as they are played out during various types of group tasks, e.g., individual pieces contributed to a single group product, individual pieces contributed but each group member puts the contributions together into his or her own product, or groups complete one assignment or product together. A science activity in which students are responsible for carrying out an experiment or building something, such as an electric circuit, would serve as a good vehicle for demonstrating all roles as applied in a single group assignment. The other path would organize protocols by role showing what a facilitator, checker, etc. does when each type of product is assigned. Under either approach, it would be necessary to produce several protocols to cover the full range of cooperative group roles.

Using Multiple Instructional Techniques

Berman et al. (1992), Ramirez et al. (1991), and Tikunoff et al. (1991) found that effective teachers employ multiple techniques to introduce and review concepts, skills, and procedures in classes that include students from diverse ethnic and linguistic backgrounds. Multiple approaches increase the likelihood that students understand what is taught. As a rule of thumb, each lesson includes a minimum of two approaches. The teacher may talk about a concept, skill, or procedure and then use objects or pictures to demonstrate it. To check student understanding, teachers may ask students to illustrate the concept, skill, or procedure in a variety of ways. Written reports are not the primary vehicle for demonstrating student learning. Plays, charts, dioramas, constructed forms, photographs, drawings, and videotapes also may be used. When complex instructional strategies are used, such as cooperative groups, teachers may videotape a class carrying out the activity and then use the videotape to illustrate group roles and products for students in other classes.

Protocols in a multimedia teacher workstation could include examples of multiple ways to present several illustrative concepts, skills, and procedures and several ways to measure students' acquisition of them. The examples should be selected so they represent concepts, skills, and procedures from several academic subject matter areas and at several levels of complexity. The

examples could be brief, since the major purpose would be to give teachers a variety of ideas for using multiple avenues for presenting information, but a fairly large number of examples would be needed. For this reason, the development team opted to leave work on prototypes in this area until a later date.

Check Curriculum Content for Words and Phrases With Which LEP Students May Be Unfamiliar or Apply a Different Interpretation

Prior to introducing an instructional topic or lesson, effective teachers of classes that include students from diverse ethnic and linguistic backgrounds review the content of textbooks, trade books, and other resources that will be used to identify words and phrases with which students may be unfamiliar or to which they may apply a different interpretation than intended in the topic or lesson. Potentially "problematic" words and phrases are introduced to students prior to assigning work in which they are applied. By using multiple techniques to demonstrate words and phrases, the teacher links the meaning to be applied in the topic or lesson to students' own backgrounds of experience and to similar words in their first languages.

SWRL already has developed a guide for conducting such analyses, and teachers already have analyzed some mathematics, science, and social science textbooks commonly used at the middle and high school levels. Protocol 6, as shown in Figure 7, presents a prototype for entering these materials in a multimedia teacher workstation or an interactive network.

Figure 7
Dimension of Teaching: Checking Curriculum Content for Word and Phrases That Might Be Problematic for LEP Students

Module 2: Protocol 6
Grade: All Grade Levels

Information To Be Presented at Beginning of the Protocol	Instructional Tools To Be Presented	Access to Existing Analyses	Comments To Be Made by Teachers or Others	Linkage With Other Modules and Content
Protocol begins with a statement about the need to be sensitive to words commonly used in instructional materials that may be unknown or misinterpreted by LEP students. Statement may be made by teachers or experts on second language acquisition.	SWRL guidelines for analyzing textbooks, trade books, and other instructional resources to identify problematic words will be included in the protocol. The analysis worksheet will be included along with directions on how to use it. Directions will require teachers to use HyperCard so problematic words and strategies for clarifying their meaning can be referenced across subject matter areas and curricular materials in the word and phrase database. SWRL system will be designed so new input from teachers conducting analyses can be entered into the database as well as existing analyses printed out.	A key feature of this protocol will be accessibility of analyses already completed by other teachers and the capability for teachers who do additional analyses to insert them into the database. This will be part of both the multimedia workstation and SWRL's page on an interactive network.	Teacher comments will be included regarding words and phrases that have proven to be key to LEP students' success in various subject matter areas.	At present, this protocol may stand alone. However, linkage of word and phrase analyses to topics used to demonstrate other instructional strategies may be included at a later date.
Information to be presented in written or oral form. Oral presentation may be over picture of pages of textbooks containing problematic words.	Include links that allow user to see examples of completed analysis sheets.	Interactiveness of this requirement will require users to be fairly sophisticated users of computer based information networks.	Points to be made by teacher over lists of problematic words in various subject matter or topic areas.	Links should facilitate movement to other protocols. Literature to be read on screen or downloaded for printing, or both.

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